Environmental Health Activities in Tennessee

NCEH in Partnership with Tennessee

The National Center for Environmental Health (NCEH) is part of the Centers for Disease Control and Prevention (CDC). NCEH's work focuses on three program areas: identifying environmental hazards, measuring exposure to environmental chemicals, and preventing health effects that result from environmental hazards. NCEH has approximately 450 employees and a budget for 2004 of approximately $189 million; its mission is to promote health and quality of life by preventing or controlling diseases and deaths that result from interactions between people and their environment.

NCEH and partners in **Tennessee** collaborate on a variety of environmental health projects throughout the state. In **fiscal years 2000–2004**, NCEH awarded more than **$3.1 million** in direct funds and services to Tennessee for various projects. These projects include activities related to helping state public health laboratories respond to chemical terrorism and preventing childhood lead poisoning. In addition, Tennessee benefits from national-level prevention and response activities conducted by NCEH or NCEH-funded partners.

Identifying Environmental Hazards

NCEH identifies, investigates, and tracks environmental hazards and their effects on people's health. Examples of such activities include asthma surveillance and environmental public health tracking. NCEH has not recently conducted or supported any such activities in **Tennessee**.

Measuring Exposure to Environmental Chemicals

NCEH measures environmental chemicals in people to determine how to protect people and improve their health. Following are examples of such activities that NCEH conducted or supported in **Tennessee**.

In fiscal years 2000–2004, NCEH awarded more than $3.1 million in direct funds and services to Tennessee.

Funding

- **Antiterrorism Funding to Increase State Chemical Laboratory Capacity**—In fiscal year 2003, CDC provided more than $1 million to **Tennessee** to help expand chemical laboratory capacity to prepare for and respond to chemical-terrorism incidents and other chemical emergencies. This expansion will allow full participation of chemical-terrorism response laboratories in the Laboratory Response Network.

  In addition, NCEH funds laboratory development and the purchase of state-of-the-art equipment in Tennessee's public health laboratories to develop a network of chemical laboratories and transfer technology to measure chemical agents.

- **Biomonitoring Grants**—In fiscal years 2001 and 2002, NCEH awarded planning grants to **Tennessee** to develop an implementation plan for a state biomonitoring program. In this way, the state could make decisions about which environmental chemicals within its borders were of health concern and could make plans for measuring levels of those chemicals in the Tennessee population.

Studies

- **Right From the Start: Early Pregnancy Health Study**—Chlorination of drinking water has benefited the public enormously by lowering the rates of infectious diseases spread through untreated water. However, disinfectants (e.g., chlorine) can react with organic matter in the water, producing disinfection by-products (DBPs). Exposure of pregnant women to DBPs in drinking water may cause increased risk for spontaneous abortion. In collaboration with

researchers at the University of North Carolina, NCEH is participating in a study to examine internal dose levels of four volatile DBPs in 150 women from three geographic areas in the United States (**Memphis**; Galveston County, Texas; and Raleigh, North Carolina). NCEH will measure blood levels of chloroform, bromodichloromethane, dibromochloromethane, and bromoform in study participants. Laboratory results will be reported to the study collaborators by the end of 2004.

- **Foodborne Outbreak in Tennessee**—In mid 2002, an entire family became ill with severe diarrhea and vomiting after a meal at a restaurant. After ruling out the usual infectious contaminants, the **Tennessee Department of Health** asked NCEH to investigate a potential chemical source for the outbreak. NCEH epidemiologists determined that pyrethroid pesticides had been used in the restaurant kitchen. In addition, typical pesticide residues on fresh vegetables were considered. Urine samples were collected from all those afflicted, and NCEH tested the samples for metabolites of pyrethroid and organophosphorus insecticides. In August 2002, NCEH reported the findings to the Tennessee Department of Health. The data indicated that one person had somewhat elevated levels of metabolites of organophosphorus insecticides, but levels of all metabolites in the remaining affected persons tested were within the expected ranges.

Services

- **Helping State Public Health Laboratories Respond to Chemical Terrorism**—NCEH is working with the public health laboratory in **Tennessee** to prepare state laboratory scientists to measure chemical-terrorism agents or their metabolites in people's blood or urine. NCEH is transferring analytic methods for measuring chemical-terrorism agents (including cyanide-based compounds and other chemicals) to Tennessee. In addition, NCEH instituted a proficiency-testing program to measure the comparability of the state's analytic results with results from the NCEH laboratory.

- **Newborn Screening Quality Assurance Program**—NCEH provides proficiency-testing services and dried-blood-spot, quality-control materials to monitor and help assure the quality of screening program operations for newborns in **Tennessee**. The importance of accurate screening tests for genetic metabolic diseases cannot be overestimated. Testing of blood spots collected from newborns is mandated by law in almost every state to promote early intervention that can prevent mental retardation, severe illness, and premature death.

- **Lipid Standardization Program (LSP)**—NCEH provides a lipid research laboratory in **Tennessee** with accuracy-based standardization support for analytic measurement. This laboratory is involved in one or more ongoing lipid metabolism longitudinal studies or clinical trials that investigate risk factors and complications associated with cardiovascular disease. The LSP, supported by NCEH's Lipid Reference Laboratory, provides quarterly analytic performance challenges and statistical assessment reports that allow program participants to monitor performance over time. Monitoring performance ensures the accuracy and comparability of study results.

Preventing Health Effects That Result from Environmental Hazards

NCEH promotes safe environmental public health practices to minimize exposure to environmental hazards and prevent adverse health effects. Following are examples of such activities that NCEH conducted or supported in **Tennessee**.

- **Childhood Lead Poisoning Prevention Program**—The **Tennessee Childhood Lead Poisoning Prevention Program** (**TN CLPPP**) has received NCEH funding since 2001. In 2001, the program screened 27,912 children for lead poisoning. The number of children under 6 years of age who had elevated blood lead levels was 258 in 2001.

  TN CLPPP is using NCEH funds to develop and implement a childhood lead poisoning elimination plan and targeted screening plan, upgrade its statewide surveillance system, and assure followup among children with elevated blood lead levels. Funds are also being used to increase primary prevention of childhood lead poisoning in pregnant women and families with children at high risk for lead poisoning.

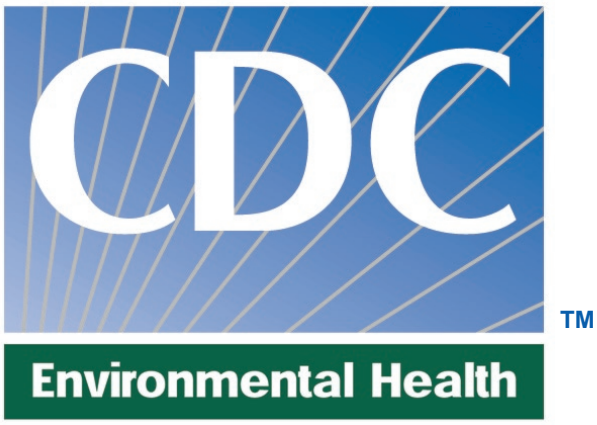
- **Environmental Health Specialists Network (EHS-Net)**—EHS-Net is a network of environmental health specialists and epidemiologists collaborating and exchanging ideas with laboratories, state food protection programs, NCEH, the Food and Drug Administration, and FoodNet. In Tennessee, NCEH funded the **Tennessee Department of Environment and Conservation** and the **Tennessee Department of Health**. Members of EHS-Net gather information from food-service establishments to learn more about food-handling practices and how they relate to foodborne illness—both what happens to cause foodborne outbreaks (e.g., cross-contamination, inadequate cooking, improper food-holding temperatures) and why foodborne outbreaks occur (e.g., inadequate worker knowledge, poor sanitation practices, improper use of equipment).

  The Retail Food Survey is a major effort of EHS-Net. For this survey, uncooked meat products are purchased from retail grocery stores in participating areas each month. In Tennessee, the **Tennessee Department of Health State Laboratory** tests the samples for contamination. The laboratory also conducts testing for *Campylobacter*, *Salmonella*, *Enterococcus*, and *Escherichia coli*. The goal of the survey is to determine the burden of microbial contamination of retail meat products and their potential contribution to foodborne illnesses.

Resources

NCEH develops materials that public health professionals, medical-care providers, emergency responders, decision makers, and the public can use to identify and track environmental hazards that threaten human health and to prevent or mitigate exposure to those hazards. NCEH's resources cover a range of environmental public health issues. These issues include air pollution and respiratory health (e.g., asthma, carbon monoxide poisoning, and mold exposures), biomonitoring to determine whether selected chemicals in the environment get into people and to what degree, childhood lead poisoning, emergency preparedness for and response to chemicals and radiation, environmental health services, environmental public health tracking, international emergency and refugee health, laboratory sciences as applied to environmental health, radiation studies, safe disposal of chemical weapons, specific health studies, vessel sanitation, and veterans' health.

For more information about NCEH programs, activities, and publications as well as other resources, contact the NCEH Health Line toll-free at 1-888-232-6789, e-mail NCEHinfo@cdc.gov, or visit the NCEH Web site at www.cdc.gov/nceh.


CDC
TM
Environmental Health